





# PATENT COOPERATION TREATY INTERNAL POT INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference									
BIF023241/BQ	FOR FURTHER ACTION  See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)								
International application No.	International filing date (day/month/ye								
PCT/FR2003/003867	22 décembre 2003 (22.12.200	24 décembre 2002 (24.12.2002)							
International Patent Classification (IPC) or national classification and IPC H01L 21/18, 21/762									
Applicant									
COMMISSARIAT A L'ENERGIE ATOMIQUE									
<ol> <li>This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</li> </ol>									
2. This REPORT consists of a total of6 sheets, including this cover sheet.									
This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).									
These annexes consist of a total of sheets.									
3. This report contains indications relati	ng to the following items:								
I Basis of the report	•								
II Priority									
III Non-establishment of	of opinion with regard to novelty, inven	tive step and industrial applicability							
IV Lack of unity of inve	ention								
V Reasoned statement citations and explana	under Article 35(2) with regard to nove ations supporting such statement	elty, inventive step or industrial applicability;							
VI Certain documents of									
VII Certain defects in the	e international application								
VIII Certain observations on the international application									
Date of submission of the demand	Date of completi	on of this report							
04 juin 2004 (04.06.200		21 March 2005 (21.03.2005)							
Name and mailing address of the IPEA/EP	Authorized office	Authorized officer							
Facsimile No.	Telephone No.	Telephone No.							

Form PCT/IPEA/409 (cover sheet) (January 1994)

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PGT/FR2003/003867

I. Basis of the report							
1. This re under A	port ha	s been drawn o	in the basis of (	(Replacement sheets s "originally filed"	ts which have been furnished to the receiving Office in response to an invitation and are not annexed to the report since they do not contain amendments.);		
	th	ne international	application as	s originally filed.			
	Z th	ne description,	pages	1-22	_, as originally filed,		
	_		pages		_, filed with the demand,		
			pages				
			pages		_, filed with the letter of		
5	ズ th	he claims,	Nos	1-38	_ , as originally filed,		
 	<b>⊸</b>				, as amended under Article 19,		
İ					, filed with the demand,		
					_ , filed with the letter of,		
ı					, filed with the letter of		
Σ	₹ th	ne drawings,	sheets/fig	1/6-6/6	_ , as originally filed,		
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2. The am	iendmei	ents have resulted					
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i		3 Urawings,	succiound	<del></del>			
3. T to	his repo	ort has been est yond the disclo	tablished as if sure as filed, a	(some of) the ame as indicated in the	endments had not been made, since they have been considered Supplemental Box (Rule 70.2(c)).		
4. Additio	nal obs	servations, if nec	cessary:				
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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

citations and explanations supporting such statement					
1.	Statement				
	Novelty (N)	Claims	1-38	YES	
		Claims		NO	
	Inventive step (IS)	Claims	1-38	YES	
	Claims		NO		
	Industrial applicability (IA)	Claims	1-38	YES	
		Claims		NO	

- 2. Citations and explanations
  - 1. Reference is made to the following documents:

D1: US-A-5 138 422 (KUROYANAGI SUSUMU ET AL) 11 August 1992;

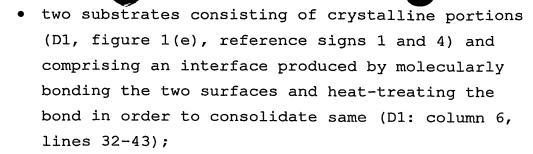
D2: US-A-6 013 954 (HAMAJIMA TOMOHIRO)
11 January 2000;

D3: US-A-5 661 316 (VANDERWATER DAVID A ET AL)
26 August 1997;

D5: EP-A-0 889 509 (HARRIS CORP) 7 January 1999.

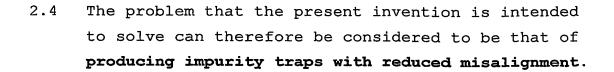
- 2. The present application fulfils the requirements set forth in PCT Article 33(1) because the subject matter of claims 1 and 32 is novel (PCT Article 33(2)) and involves an inventive step as defined in PCT Article 33(3).
- 2.1 Document D1, which is considered to be the prior art closest to the subject matter of claims 1 and 32, describes (the references between parentheses apply to said document):

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- a step of forming, in at least one of said two surfaces, localised areas on which a material other than those which constitute said crystalline portions is stacked (D1, figure 1(e), reference sign 3b); and
- a step of producing impurity traps so that any interface portion spaced apart from the stacked areas is no more than a predetermined distance away from a stacked area or a trap (D1: figure 1(f), reference signs 3b and 6; column 7, lines 57-62; column 8, lines 32-34).
- 2.2 It follows that the subject matter of claims 1 and 32 differs from this known method and structure in that:
  - said two substrates comprise crystalline portions having, on either side of said interface, a rotational misalignment deviation of less than +-6° and a flexural misalignment deviation of less than +-1°; and
  - the surfaces are positioned opposite one another in such a way that the misalignment deviation between the crystalline portions of said two substrates is below a predetermined threshold.
- 2.3 It follows that the subject matter of claims 1 and 32 is novel (PCT Article 33(2)).

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- 2.5 The solution to this problem, as proposed in claims 1 and 32 of the present application, is considered to involve an inventive step, for the following reasons:
- 2.6 None of the documents cited in the international search report suggests the solution in claims 1 and 32:
  - Even though document D5 describes impurity traps, the method known therefrom leads to a misalignment of the two substrates. Claims 1 and 32, on the other hand, describe a misalignment that is below a predetermined threshold.
  - Even though documents D2 and D3 describe the precise alignment of the two substrates (D2: column 4, lines 33-38; D3: figures 2 and 3; column 4, lines 34-65; column 5, lines 25-46), documents D2 and D3 do not describe the production of impurity traps with reduced misalignment.
- 2.7 It would not be obvious for a person skilled in the art to use the features known from documents D2, D3 or D5, with a corresponding effect, in a method and construction as per document D1 and thereby arrive at a method and construction as per claims 1 and 32.

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- 2.8 In particular, it would not be obvious for a person skilled in the art to create stacked areas consisting of a material other than that used in the crystalline areas in order not only to produce impurity traps but also to generate a misalignment deviation below a predetermined threshold.
- 2.9 The subject matter of claims 1 and 32, therefore, involves an inventive step as defined in PCT Article 33(3).
- 3. Claims 2-31 are dependent on claim 1 and claims 33-38 are dependent on claim 32. It follows that, as such, claims 2-31 and 33-38 also fulfil the PCT requirements of novelty and inventive step.
- 4. The subject matter of claims 1-38 fulfils the requirements set forth in PCT Article 33(4).